

Version: 15.06.2023

## OVERVIEW



The *Dzero Gateway 4x* is a battery powered device and used for remote reading of electricity meters with optical D0 / "INFO" interface.

## FEATURES

- The device supports the SML protocol and IEC 62056-21 and has a protocol autodetection
- Uplink data via NB-IoT mobile radio (LTE bands: 3, 8, 20)) or LoRaWAN v1.0.2 (EU-868)) or wMBus
- Communication with meters takes place by means of the round Lobaro add-on module ("opto head")
- Up to four electricity meters can be read with only one Dzero Gateway 4x
- Automatic detection of the amount of connected opto heads
- Opto head is attached to meter with an integrated magnet
- One opto head is included, three more can be connected
- Connection to a TH 35 top-hat rail is given via a top-hat rail holder
- Interface D0 is intended to be used by end-users **and not for billing** purposes of the electricity supplier

## APPLICATION

The *Dzero Gateway 4X* is a battery powered device. It is used for automated LoRaWAN, wMBus, Nb-IoT or LTE-M remote read out of novel "smart metering" devices via the standardized optical customer interface ("INFO") of the electricity meter.

## TECHNICAL SPECIFICATIONS

### General

Type	LOB-GW-SUN-DZERO
Purchase name	Dzero Gateway 4X
Input Voltage	3.3V to 5V, 3.6V (standard)
Item number	8000195

### Cellular NB-IoT / LTE Cat. M1 Modem

LTE SIP	Nordic nRF9160
LTE bands	Standard: B8, B20, B3 (791 MHz - 969 MHz, 1710 MHz – 1785 MHz) Other Bands on request
SIM card	4FF (Nano-SIM)
Data Upload	Secure CoAP over DTLS (via Lobaro IoT Platform)

### LoRaWAN

Type	Semtech SX1261
LoRaWAN Protocol Version	Class A LoRaWAN 1.0.2 (EU-868)
TX power	≤ +14 dBm
Activation method	Over-the-air activation (OTAA) Activation by personalization (ABP)
Typical RF range	≤ 2km
Ideal RF range	≤ 10km (free line of sight)
Encryption	AES128

### Antenna

Ext. type	SMA female connector ≤ 2 dBi
Internal type	Optional: Multiband PCB monopole (NB-IoT)

### Battery

Approved type	SAFT LSH-20
Voltage	3.6V
Other types	On request
Chemistry	Li-SOCI2
Capacity	≤ 13 Ah
Max. Current	≤ 1.8 A
Weight	≤ 120 g
Connector	JST-XH 2-Pin

### Additional I/O

Local configuration port	PC based initial configuration via USB adapter
LED	RGB Led to signal different operating modes
4 x RJ45	Connection of opto heads with 1m cable
Jack socket, 3,5mm	Connection for folding converter

# DZERO GATEWAY 4X

LOB-GW-SUN-DZERO



## TECHNICAL SPECIFICATIONS

### Power Supply

Supply Voltage Connection	JST XH 2P Connector
Supply Voltage Range	3.3V – 5V Volt (DC)
Max. Power Consumption	≤ 2.5W
Typical Power Consumption	≤ 1.5W

### Housing

Dimensions	147,3mm (l) x 77,9 mm (b) x 46mm (h)
Material	Polystyrol
Weight	342 g (incl. battery)
Protection class	IP4X
Color	black (RAL 9016)
Opto head	31,6(d) x 27,2(h)

### Environment

Operating temp.	-20 °C to 55 °C
Storage temp.	0 °C to 30 °C

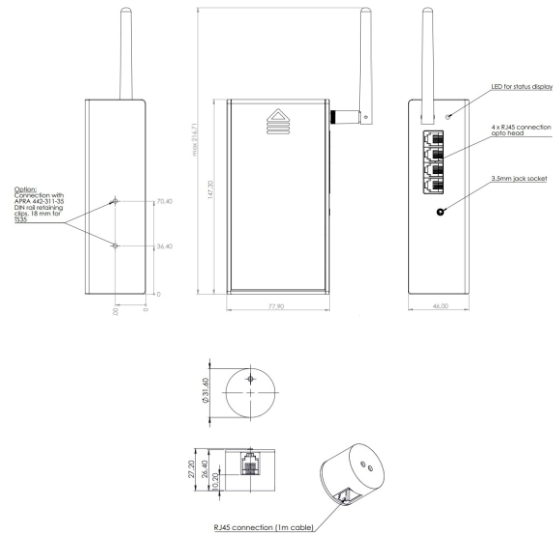
### Certificates and approvals



- EN 300 220-1 (RF)
- EN 300 220-2 (RF)
- EN 301 908-1 (RF)
- EN 301 908-13 (RF)
- EN 301 489-3 & EN 301 489-52 (EMC)
- EN 62368-1 (Electrical Safety)
- EN 62311:2008 (Electrical Safety)
- IEC 63000:2018 (RoHS)



## DIMENSIONAL DRAWINGS



## WARRANTY AND GUARANTEE

Warranty and guarantee claims can only be asserted if the device has been used as intended and the technical specifications and applicable technical rules have been observed.

## RADIO FREQUENCY

RX: receive mode, TX: transmit mode

Direction	Protocol	Frequency	Bandwidth	Modulation	Duty-Cycle	Transmit Power (EIRP)
RX	wMBUS C/T1	868.95 MHz	+/- 0.050 MHz	FSK	-	-
RX	wMBUS S1	868.3 MHz	+/- 0.050 MHz	FSK	-	-
RX + TX	NB-LoT Band 8	880-915 MHz (up) 925-960 MHz (down)	25 MHz	NB-LoT	-	≤ 23 dBm
RX + TX	NB-LoT Band 20	832-862 MHz (up) 791-821 MHz (down)	30 MHz	NB-LoT	-	≤ 23 dBm
RX + TX	NB-LoT Band 3	1710-1785 MHz (up) 1805-1880MHz (down)	75 MHz	NB-LoT	-	≤ 23 dBm